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Phono Solar

Share the Sun, Power the Future

***Phono
Technologies
Switzerland***

F SERIES MONO

MECHANICAL CHARACTERISTICS

Solar Cells	Mono crystal Si 125 mm × 125 mm square, 6 × 12 pieces in series
Dimension	Length: 1580 mm
	Width: 808 mm
	Height: 35 mm *
Weight	15 kg
Front Glass	3.2 mm toughened glass
Frame	anodized aluminium alloy
Cable	0.90 m wire (ø 4 mm ²)
Diodes	3 pieces schottky by-pass diodes
Junction Box	IP 65 rated

* Also available in 45 mm

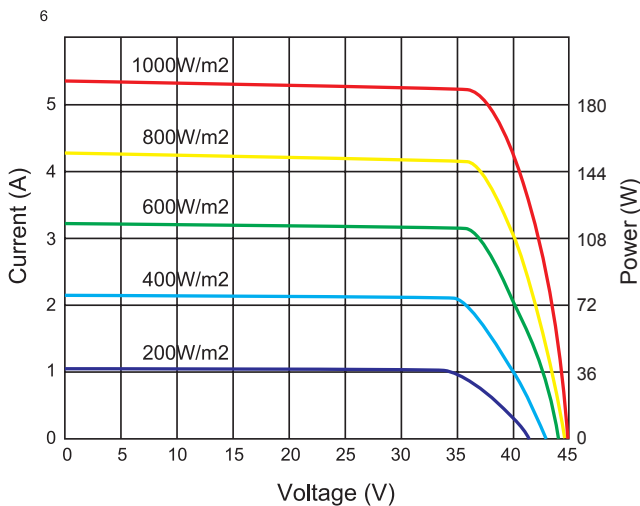
ABSOLUTE MAXIMUM RATING

Parameter	Values	Unit
Operating Temperature	from -40 to +85	°C
Typical Application	24 V DC	
Hail Diameter @ 80 Km/h	up to 25	mm
Surface Maximum Load Capacity	up to 5400	Pa
Maximum Series Fuse Rating	10	A
IEC Application Class (IEC 61215)	A	
Fire Rating (UL 1703)	C	
Maximum system voltage	1000 V DC (IEC 61215)	
	600 V DC (UL 1703)	

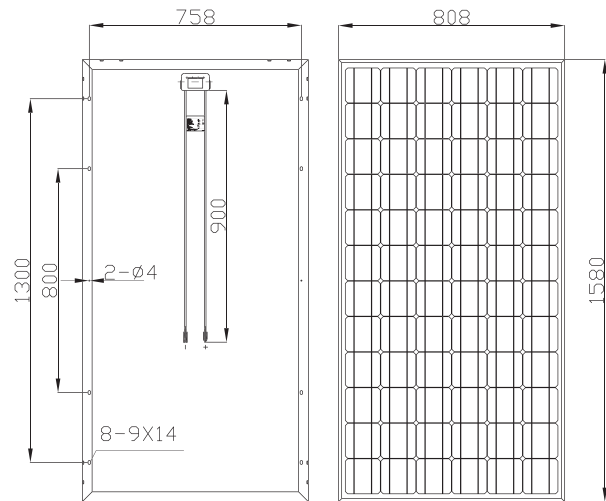
ELECTRICAL TYPICAL VALUES ^{1,2}

Model	Rated Power (P _M)	Tolerance	Rated Current (I _M)	Rated Voltage (V _M)	Short Circuit Current (I _{sc})	Open Circuit Voltage (V _{oc})	Module Efficiency (%)
PS180M-24/F	180 W	±3%	4.98 A	36.2 V	5.25 A	44.6 V	14.10
PS185M-24/F	185 W	±3%	5.06 A	36.6 V	5.30 A	44.8 V	14.49
PS190M-24/F	190 W	±3%	5.14 A	37.0 V	5.35 A	45.0 V	14.88
PS195M-24/F	195 W	±3%	5.22 A	37.4 V	5.40 A	45.2 V	15.27
PS200M-24/F	200 W	±3%	5.30 A	37.8 V	5.45 A </td <td>45.4 V</td> <td>15.67</td>	45.4 V	15.67
NOCT (Nominal Operation Cell Temperature): 45°C ± 2°C					Voltage Temperature Coefficient: -0.35% / °C		
					Current Temperature Coefficient: 0.05% / °C		
					Power Temperature Coefficient: -0.48% / °C		

I-V CURVE



DIMENSIONS



PACKING INFORMATION

Container	20' GP	20' GP	40' GP	40' HQ
Frame Height	35 mm	45 mm	35 mm	45 mm
Pieces Per Pallet	27	22	27	22
Pallets Per Container	12	12 **	28	28 ***
Pieces Per Container	324	288	756	728

** Plus 12 individual modules
*** Plus 56 individual modules

Note:

- Defined as standard deviation from thousands of measurements. Absolute power values depend on the measuring method. They can deviate by +/- 5% from one measuring method to another.
- Measurement conditions under irradiance level of Standard Test Conditions (STC):1000W/M², Air mass 1.5 Spectrum, cell temperature of 25°C.

CERTIFICATION



U SERIES MONO

MECHANICAL CHARACTERISTICS

Solar Cells	Mono crystal Si 156 mm × 156 mm square, 6 × 10 pieces in series
Dimension	Length: 1640 mm
	Width: 992 mm
	Height: 45 mm
Weight	20 kg
Front Glass	3.2 mm toughened glass
Frame	anodized aluminium alloy
Cable	0.90 m wire (ø 4 mm ²)
Diodes	6 pieces schottky by-pass diodes
Junction Box	IP 65 rated

ABSOLUTE MAXIMUM RATING

Parameter	Values	Unit
Operating Temperature	from -40 to +85	°C
Typical Application	20 V DC	
Hail Diameter @ 80 Km/h	up to 25	mm
Surface Maximum Load Capacity	up to 5400	Pa
Maximum Series Fuse Rating	15	A
IEC Application Class (IEC 61215)	A	
Fire Rating (UL 1703)	C	
Maximum system voltage	1000 V DC (IEC 61215)	
	600 V DC (UL 1703)	

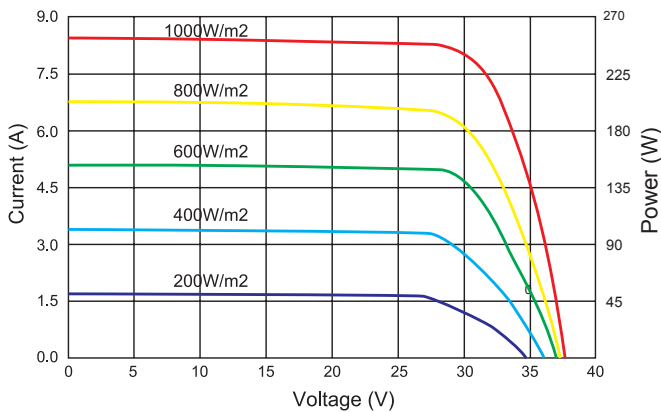
ELECTRICAL TYPICAL VALUES ^{1,2}

Model	Rated Power (P _m)	Tolerance	Rated Current (I _m)	Rated Voltage (V _m)	Short Circuit Current (I _{sc})	Open Circuit Voltage (V _{oc})	Module Efficiency (%)
PS220M-20/U	220 W	±3%	7.54 A	29.2 V	8.05 A	37.0 V	13.52
PS225M-20/U	225 W	±3%	7.66 A	29.4 V	8.15 A	37.1 V	13.83
PS230M-20/U	230 W	±3%	7.78 A	29.6 V	8.25 A	37.3 V	14.14
PS235M-20/U	235 W	±3%	7.90 A	29.8 V	8.35 A	37.5 V	14.44
PS240M-20/U	240 W	±3%	8.00 A	30.0 V	8.45 A	37.6 V	14.75
PS245M-20/U	245 W	±3%	8.13 A	30.2 V	8.55 A	37.8 V	15.06
PS250M-20/U	250 W	±3%	8.24 A	30.4 V	8.65 A	37.9 V	15.37
PS255M-20/U	255 W	±3%	8.35 A	30.6 V	8.75 A	38.0 V	15.67
PS260M-20/U	260 W	±3%	8.46 A	30.8 V	8.85 A	39.1 V	15.98

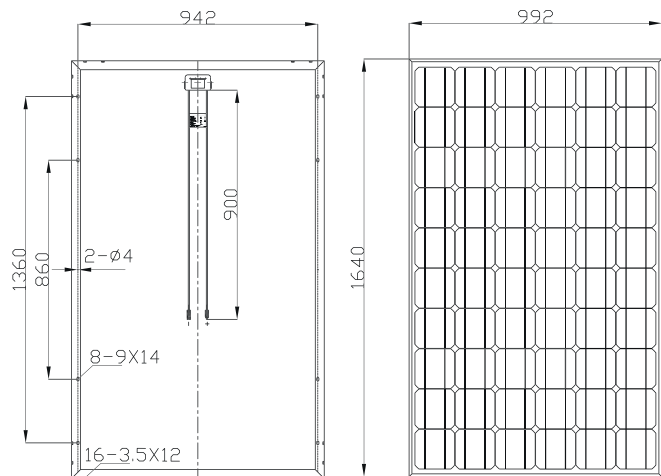
NOCT (Nominal Operation Cell Temperature): 45°C ± 2°C

Voltage Temperature Coefficient:	-0.35% / °C
Current Temperature Coefficient:	0.05% / °C
Power Temperature Coefficient:	-0.48% / °C

I-V CURVE



DIMENSIONS



PACKING INFORMATION

Container	40' HQ
Pieces Per Pallet	22
Pallets Per Container	28
Pieces Per Container	616

CERTIFICATION



Note:

- Defined as standard deviation from thousands of measurements. Absolute power values depend on the measuring method. They can deviate by +/- 5% from one measuring method to another.
- Measurement conditions under irradiance level of Standard Test Conditions (STC): 1000W/M², Air mass 1.5 Spectrum, cell temperature of 25°C.

Phono Solar

Bringing clean, green power to the UK



About Us

Phono Solar is one of the UK's best known and well trusted brands in the PV market. With a 25-year backed-up performance warranty and 5 years manufacturer's guarantee, quality comes as standard, as all Phono Solar PV modules are produced using only first-class materials to ensure the highest yield. First grade silicon, highly resistant glass and other materials greatly contribute to the above standard life expectancy, high stability and resistance even under the most extreme conditions.

All modules supplied in the UK are MCS approved.

Contact our distributors or for further information
Phono Solar UK's Sales office: 01904 477920,
info@phonosolar.co.uk

Distribution Channels

With a well-established distribution network in the UK, Phono Solar guarantees fast availability, and the best customer service experience. Since the introduction of the government funded feed-in tariff in April 2010 Phono Solar modules have been used in thousands of installations in the UK from domestic to commercial projects.

In conjunction with strategic EPC partners, Phono Solar can offer guidance and solutions in the development of projects. You will benefit from advice throughout the entire process – from design, selection of suitable components, development and financing to the construction and management of the project.

Certified first class quality



5 - YEAR

Product
Guarantee

10 - YEAR

90 %

Power Output
Guarantee

25 - YEAR

80 %

Power Output
Guarantee